

**Flood Recovery Advisory Working Group
Final Report for Governor Michael L. Parson
May 31, 2020**

Introduction and Background

In response to significant and ongoing flooding on the Missouri and Mississippi rivers, Governor Michael L. Parson signed Executive Order 19-14 on July 18, 2019. The order outlined the formation of an advisory working group that would provide input on the state's short-, medium- and long-term flood recovery priorities and feedback on the state's current levee system with suggested changes to benefit Missouri and its citizens. The group also was asked to identify areas where attention is needed and provide input on priorities for allocation of state funding for flood recovery. The following organizations and members were appointed to the working group by Governor Parson:

Missouri Department of Agriculture – Chris Chinn (Co-chair), Chris Klenklen
Missouri Department of Natural Resources – Carol Comer (Co-chair), Dru Buntin
Missouri Department of Economic Development – Luke Holtschneider
State Emergency Management Agency – Ron Walker, Ron Broxton
Missouri Department of Transportation – Chris Engelbrecht
Missouri Levee and Drainage District Association – Bill Jackson, Tom Waters, Joe Gibbs
Missouri Farm Bureau Federation – Blake Hurst, Dan Cassidy,
Missouri Corn Growers Association – Gary Marshall, Samantha Davis, Ben Travlos
Missouri Soybean Association – Casey Wasser
Coalition to Protect the Missouri River – David Shorr
Missouri and Associated Rivers Coalition – David Combs, Tom Poer
Henry Dienst, Clark County Commission
Randy Railsback, Green Hills Regional Planning Commission
Lucy Fletcher, AgriServices of Brunswick
Roger Hugenberg, Ursa Farmers Cooperative (Canton)
Adam Jones, Mississippi River Farmer/CoBank Lending
Ryan Ottman, Atchison County Levee District 1

The Flood Recovery Advisory Working Group was convened and co-chaired by the Departments of Natural Resources and Agriculture. The Governor's executive order requested an interim report with findings and suggestions by Dec. 31, 2019, and a final report by May 31, 2020. This report serves as the final report of the Flood Recovery Advisory Working Group.

Meetings and Discussion

The Flood Recovery Advisory Working Group convened monthly meetings to complete due



diligence in compliance with Governor Parson's Executive Order 19-14. The January 2020 meeting was cancelled due to inclement weather. Full agendas, video of proceedings and meeting notes can be found at dnr.mo.gov/floodrecovery. The following is a summary of the topics presented and members' discussion from each of the meetings. In addition to the topics covered below, the Flood Recovery Advisory Working Group discussed topics and recommendations for the report, and received public comment at each meeting.

Aug. 27, 2019

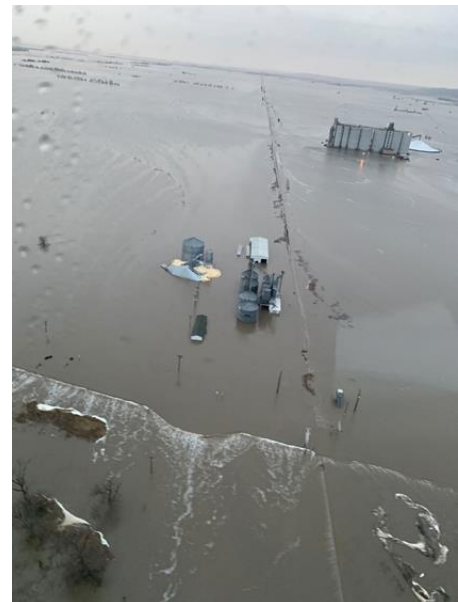
- Governor Parson welcomed and thanked the Flood Recovery Advisory Working Group
- U.S. Army Corps of Engineers (USACE) Kansas City, Omaha, St. Louis, and Rock Island districts: Levee evaluation and repair
- The Federal Emergency Management Agency (FEMA): Flood recovery assistance
- U.S. Department of Agriculture (USDA) Farm Service Agency (FSA), Natural Resources Conservation Service (NRCS), and Risk Management Agency (RMA): Assistance for producers
- State Emergency Management Agency (SEMA) and the Missouri Department of Economic Development (DED): Missouri's Disaster Recovery Framework
- Missouri Department of Transportation (MoDOT): Damage to the state's transportation infrastructure
- Missouri Department of Natural Resources (DNR): Flood recovery collaboration with neighboring states Iowa, Kansas, and Nebraska

Sept. 20, 2019

- USACE Kansas City and St. Louis districts: Overview of 2019 flood and system operations for the Missouri and Mississippi rivers

Oct. 17, 2019

- University of Iowa: The Iowa Flood Information System, a statewide monitoring and flood prediction system developed in response to the devastating 2008 flood on the Cedar River
- MoDOT: Initial economic analysis of losses due to the closure of Interstate 29 in northwest Missouri, and disruptions to navigation, rail, and airport operations due to flooding
- FEMA and SEMA: Updates on recovery assistance



Nov. 22, 2019

- USDA NRCS, USACE Omaha District, and the Atchison County Levee District No. 1: Overview of two potential levee setbacks (federal levees L-550 and L-536) to mitigate future flood events

Dec. 9, 2019

- U.S. Geological Survey: Lessons learned from past great floods on the Missouri River

Jan. 17, 2020

This meeting was cancelled due to inclement weather.

Feb. 10, 2020

- USACE Kansas City, Rock Island, and St. Louis districts: Update on assessment and repair status of levees
- SEMA: Update on state efforts to fund portions of ongoing levee repair work



- USACE Water Management Office: Status of reservoir operations on the Upper Missouri River
- National Weather Service (NWS): Overview of winter and spring climate forecasts for both the Missouri and Upper Mississippi River basins

- USDA RMA: Crop insurance rate procedures and updates on projected crop insurance rates for the 2020 season in Missouri

March 9, 2020

- DNR: Soil Moisture Network in Missouri, updates on the joint planning activities of the Lower Missouri River states (Missouri, Kansas, Iowa, and Nebraska)
- Staff from Representative Blaine Luetkemeyer's office: Discussion of federal legislation introduced by the Congressman regarding the Mississippi River (H.R. 5288)

April 13, 2020

This meeting was conducted remotely via webinar and conference call.

- NWS: Spring and summer climate update
- USACE Water Management Office: Spring and summer reservoir operation update
- Offices of Representative Graves, Senator Hawley, and Senator Blunt: Legislative overview
- Conservation organizations: Update on conservation priorities for flood recovery
- The Nature Conservancy: Demonstration of a Floodplain Prioritization Tool
- USDA NRCS: Discussion of wetland easement access to accommodate levee repairs

May 13, 2020

The group held its final meeting remotely May 13.

- Missouri Railroad Association: Cooperative recovery approaches
- USDA RMA: Crop insurance updates
- Missouri University of Science and Technology: Discussion of potential Missouri Water Information System similar to the system Iowa uses to predict and respond to flooding

Findings and Recommendations

A. States Should Have a Leadership Role in Implementing Improvements to Flood Protection Infrastructure and Management of Major River Systems:

States have the best working knowledge of the complex benefits and risks associated with our major river systems and are in closer ongoing communication with affected landowners, local governments, and other stakeholders. A framework that allows states to have a strong leading voice to shape the creation of systemic plans designed to decrease impacts from flooding and influence the management of these rivers will foster a regional approach to improve outcomes for the broad landscape of stakeholders involved. The working group recognizes both the Missouri River and Mississippi River have unique physical and hydraulic characteristics and encourages a broad analysis of flood control strategies tailored to the specific conditions at different locations on each river system and considering the perspectives of local stakeholders.

- The **state of Missouri** should continue coordination with Iowa, Kansas, and Nebraska in order to establish a stronger role for lower Missouri River states in implementing improvements to flood protection infrastructure and in the operation of the Missouri River system. In addition, **Congress** should establish opportunities for states to create an ongoing independent stakeholder review of the operation of the Missouri River system, such as the previous Missouri River Commission or the current Mississippi River Commission.
- The **state of Missouri** should continue to support ongoing coordination, led by the Upper Mississippi River Basin Association, to improve management of flooding, sediment, and drought in the upper Mississippi River basin. In addition, **Congress** should support robust funding for the Planning Assistance to States Upper Mississippi River Flood, Drought, and Sediment Management Study to develop an improved, more systemic approach to flood management on the Upper Mississippi River. A primary goal of this effort should be the development of a systematic approach to levee design on the Upper Mississippi River to ensure balanced protection.
- The **state of Missouri** should continue to facilitate communication channels and outreach between all floodplain stakeholders, including but not limited to: farmers, private landowners, levee districts, municipalities, non-governmental organizations, railroad operators, and public land managers. Ongoing coordination among diverse stakeholders will provide landowners a wide range of information when making decisions about flood risk and protection.

B. Flood Protection Programs Should Prioritize Long-Term and Systemic Solutions:

Federal programs and authorities aimed at providing assistance in flood recovery and flood protection/flood risk management are often restrictive and encourage the status quo

instead of allowing creative solutions that will best benefit the entire system in the long-term.

1. **State and federal agencies** should support levee district projects aimed at reducing the impact of pinch points and improving conveyance. In the short-term, state and federal agencies should provide any available support to the Atchison County Levee District No. 1's levee setback project with the participation of willing landowners.
2. **Congress** should amend requirements of the Wetland Reserve Program and the Floodplain Easement Program (U.S. Department of Agriculture Natural Resources Conservation Service) to allow flexibility in the transfer of easements for emergency repair work to achieve equivalent intent of the respective easement programs while allowing necessary repairs to proceed in a timely manner.
3. **Congress** should amend the U.S. Army Corps of Engineers' Emergency Readiness and Response Public Law 84-99 (PL 84-99) program, which is limited to the lowest-immediate-cost practicable repair option, to allow for a longer-term view of costs, resulting in exploration of creative options for levee resilience and lowering the likelihood of complete levee failure and repeated repair costs. While recognizing the importance of timely repairs to damaged flood protection infrastructure, the Corps of Engineers should consult with affected landowners and levee districts and seek to consider the optimal strategy for permanent repairs when implementing temporary repairs so that the cost of such temporary repairs do not inhibit the implementation of desired improvements.
4. **The State and other partners, such as the Federal Emergency Management Agency, the U.S. Army Corps of Engineers, and the U.S. Geological Survey,** should work to develop and improve tools that expand understanding of how the rivers behave as systems. Floodplain development may have unintended upstream and downstream consequences. Tools such as flow frequency information and flood inundation mapping can provide a better understanding of systemic flooding and how landowners and existing infrastructure could be impacted by flood events as a result of changes in the flood plain. The partnership created in response to 2017 flooding in the Meramec River system can serve as a good example of state, local, and federal cooperation to create tools usable by a wide range of stakeholders to improve flood protection.
5. **Congress and the Missouri General Assembly** should consider increasing appropriations for all state and federal programs that support pre-disaster mitigation assistance so that resources are available to proactively implement projects designed to reduce flood damages to landowners and improve community resiliency.
6. **Congress** should consider authorizing and appropriating additional funding to increase payments under the Payment in Lieu of Taxes program. Counties in which lands may be federally acquired to reduce flood risk should receive reliable and sufficient remuneration. Such public lands are at lower financial risk when flooding occurs, and can provide flood risk reduction, recreational and ecological benefits locally and to other counties along the river, but also have implications for local tax revenue.
7. **The state of Missouri and the U.S. Army Corps of Engineers** should endeavor to record and report out annual damage locations and costs; record and report out the occurrence of repetitive damage locations; conduct watershed analyses of levee

constrictions (pinch points); account for all floodplain investments and ecosystem services; and identify levee districts that are interested in levee setbacks in areas of constriction. This information should be used to evaluate a wide range of options that will provide systemic flood protection. Options should include: replacement, hardening, elevating, setting back, lowering of structures, non-structural options, and buy out of willing sellers at pre-flood fair market values. Multiple options should be considered, but implementation of improvements should be tailored to specific site conditions and consider the perspectives of landowners, local government, and others directly affected.

C. Flood Recovery Programs Should Offer Timely, Common-Sense Solutions: As communities, landowners, and levee districts seek to recover from major flood events, rigid approaches to regulatory requirements and authorities often force those affected to navigate confusing policies and rules while people and property are exposed to increased flood risk. Those citizens impacted by flooding who desperately need federal resources often find the policies and requirements of multiple agencies in conflict with the need for timely repairs.

1. After current recovery activities conclude, **the U.S. Army Corps of Engineers** should streamline district boundaries in northern Missouri.
 - Kansas City District should cover Atchison County (currently Omaha District).
 - St. Louis District should cover Clark, Lewis, Marion, Scotland, Knox, Shelby, Schuyler, and Adair counties (currently Rock Island District).
2. **The U.S. Army Corps of Engineers and other relevant federal and state agencies** should consider implementing the maximum allowable flexibility with regards to regulatory requirements during disaster response to relieve some regulatory burden during response and recovery activities that restore base levels of protection from further flood impacts. This should include current requirements for real estate, environmental, cultural resources, and socioeconomic reviews.
3. **All federal and state agencies** involved in recovery from flood events should seek to ensure debris removal can move forward when flood water recedes without unnecessary regulatory delay.
4. **The U.S. Army Corps of Engineers** should seek to optimize approaches to flood control in rural areas to an extent comparable to urban areas. Urban flood protection appears more successful than rural flood protection. Benefit-to-cost ratios should include repeated repair costs of frequently damaged levees and should consider a broader range of benefits provided by protection in rural settings. Benefit-to-cost ratio should also consider economic impact of flood damages to rural communities.
5. **The U.S. Army Corps of Engineers** should make every effort following major flood events to, at minimum, conduct partial repairs on breached levees participating in the P.L. 84-99 program to assist in lessening the anticipated increased crop insurance premiums. In the recovery from future flood events, the U.S. Army Corps of Engineers should grant approval for third party engineers, such as the U.S. Department of Agriculture Natural Resources Conservation Service or county engineers, to verify partial levee restoration.

6. **The U.S. Department of Agriculture’s Risk Management Agency** should continue to explore ways to provide flexibility in determining premium rates in growing seasons when there has been damage to flood protection infrastructure. To the extent that such flexibility is not authorized under current law, **Congress** should consider modifications to the authorizations for the Federal Crop Insurance Program.
7. **Federal agencies** responsible for applying various statutes, regulations, guidance, and funding during flood recovery should explore ways to provide increased flexibility and responsiveness to aid in creating expediency of response and resilient long-term solutions. To the extent that such flexibility is not authorized under current law, **Congress** should consider modifications to applicable authorizations. Examples include:
 - Develop a streamlined process under the National Environmental Policy Act whereby one federal agency’s environmental review can be recognized by any other agency that becomes involved with the project.
 - Agencies following the Housing and Urban Development Agency’s Uniform Relocation Act guidance are often prevented from timely use of funding, especially in instances of simple real estate transactions with willing landowners, such as implementing a levee setback project. Because such projects must be done quickly in order to restore lost flood protection, such delays prevent multiple agencies from collaborating with the use of Community Development Block Grant funding on projects designed to increase long-term protection and reduce future risk to lives and property.
 - The U.S. Department of Agriculture Natural Resources Conservation Service interprets 7 CFR § 1468.6 when evaluating proposed easement exchanges. This statute’s intention is to prevent a taking or degradation of a standing easement without proper compensation. For projects such as levee setbacks, this statute does not appear to allow consideration of overall project benefits, and could incur burdensome costs, such as additional appraisal costs and exchange compensation. If insufficient flexibility exists for the Natural Resources Conservation Service to consider alternative approaches that recognize total project benefits, **Congress** should amend the statute to provide such flexibility.
 - **The Federal Emergency Management Agency** should review its definition of what constitutes critical infrastructure to ensure such definition includes the broad range of appropriate items, such as drinking water well fields.
 - **The Federal Emergency Management Agency** should review its process for assessing flood damages and valuations on residential properties to account for differences in the cost of living, cost of labor, and replacement value throughout the state.
 - **The Federal Emergency Management Agency** should revise its policy, which prohibits the use of funding for debris removal within levee districts participating in the U.S. Army Corps of Engineers’ PL 84-99 levee program as debris removal is not an expense funded by the U.S. Army Corps of Engineers’ program.
8. **Congress** should amend PL 84-99 to authorize the U.S. Army Corps of Engineers to fund repairs at 100% federal expense for non-federal levee systems, consistent with

current practice for federal levees. In addition to the burden on local sponsors, the current requirement of 20% match from non-federal levee sponsors is inefficient for the U.S. Army Corps of Engineers, as the effort expended by the agency in accounting for match is greater than the local funding ultimately provided, and contributes to delays in repairs.

D. Investment in Flood and Navigation Infrastructure: Flood protection and navigation infrastructure are inextricably linked, and sufficient funding is necessary to address operations and maintenance needs as well as the need for modernizing this infrastructure as a result of years of deferred maintenance.

1. **The Governor and members of Missouri's Congressional delegation** should reach out to their peers in states where there has been flooding over the past few years and work to build congressional and administration support for improved flood control infrastructure across the nation, including both structural and non-structural solutions.
2. **Congress** should fund efforts by the U.S. Army Corps of Engineers to take immediate appropriate action to address impacts to the Bank Stabilization and Navigation Project on the Missouri River resulting from past alterations to river training structures and from chutes or side channels not performing as designed and capturing too much flow from the navigation channel. **The U.S. Army Corps of Engineers** should take immediate and appropriate action to fix dike notches put in place that are causing bank erosion on private lands.
3. **Congress** should fund efforts by the U.S. Army Corps of Engineers to maintain the navigation channel on the Upper Mississippi River by dredging. Congress should also fund the implementation of the authorized Navigation and Ecosystem Sustainability Program to modernize the Mississippi River lock and dam system for the same reason.
4. **The U.S. Army Corps of Engineers** should work with Missouri River basin states to develop specific strategies for addressing the impact on system storage from sediment buildup in the upper basin reservoirs. Such strategies should include a technical path forward to remove the sediment in the upper Missouri River reservoirs to help restore storage lost to sedimentation. **Congress** should provide the U.S. Army Corps of Engineers with any necessary authorizations and funding to implement this recommendation.
5. **The U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and Missouri Department of Conservation** should review management of floodplain land to optimize vegetation for conveyance.

E. The State of Missouri Should Develop Flood Recovery Strategies: The state has a role in short-term and long-term flood recovery and has a responsibility to its citizens to provide information and support to continued recovery and flood protection.

1. **The state of Missouri** should develop a handbook for state and federal flood recovery assistance for flood protection infrastructure and agriculture. The handbook should provide directions on how communities, levee districts, and other landowners directly impacted by flooding can apply for multiple funding sources that can be used in coordination.

2. **The state of Missouri** should assess and more accurately characterize impacts to agriculture from the 2019 flood events that may extend into the coming years. The assessment should consider total acres of prevented planting, the crops impacted, and the impact of prevented access by farmers to crop land to conduct recovery activities and begin work for upcoming seasons.
3. **The Missouri Soil and Water Districts Commission** should explore opportunities to target soil and water conservation practices in areas that would improve drought resiliency and decrease flood risk.
4. **The state of Missouri** should develop an enhanced flood monitoring system comparable to the Iowa Flood Information System. Such a system should include and draw upon the expertise of various university and state and federal government partners and be tailored to the specific needs of Missouri.

Conclusion

The members of the Flood Recovery Advisory Working Group were presented with a considerable amount of information and had productive and thought-provoking discussions leading to the enclosed recommendations. The Departments of Natural Resources and Agriculture appreciate the amount of time members committed to the group's work, and have been impressed with the members' level of participation in this process as well as their flexibility during these challenging times. The group has been dedicated to this important topic and we are honored to submit these recommendations to the Governor on its behalf. The state agencies involved in the Flood Recovery Advisory Working Group express our appreciation to Governor Parson and his staff for the opportunity to explore and provide input on strategies to expedite recovery from the 2019 floods and lessen impacts in future flood events.

